

**3/10/11
OVERVIEW:
RAILBELT
LARGE HYDRO
EVALUATION
PRELIMINARY
DECISION
DOCUMENT**

<TARGET><BILL></BILL><SUBJECT>3-10-11 OVERVIEW
RAILBELT LARGE HYDRO EVALUATION PRELIMINARY DECISION
DOCUMENT</SUBJECT><COMM>HCRA27</COMM></TARGET>

Railbelt Large Hydroelectric

House Community & Regional Affairs Committee

Prepared by Alaska Energy Authority 3/08/2011



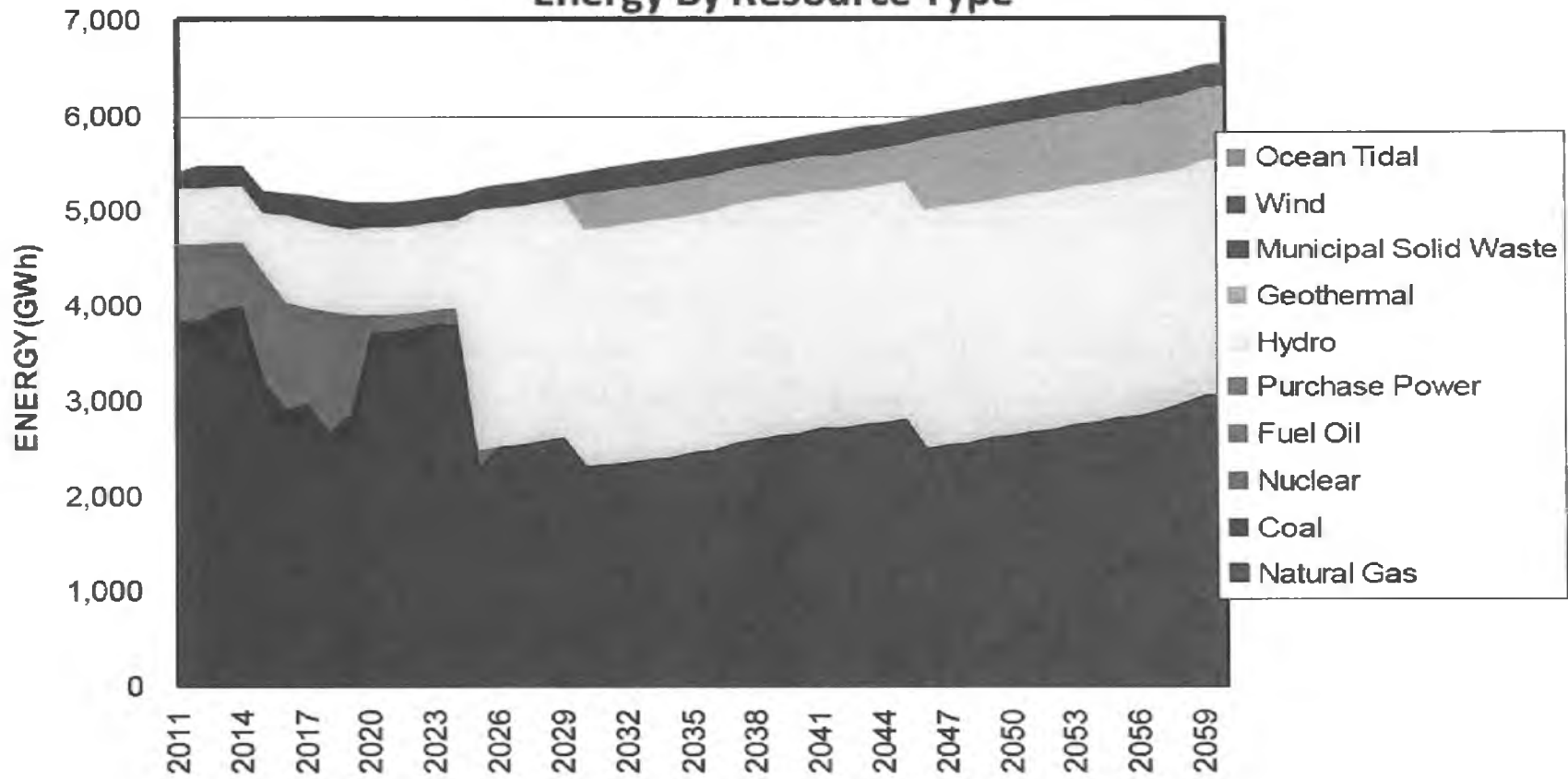


Alaska Energy Authority:

- **Public corporation created by legislature in 1976**
- **Owned projects include Bradley Lake Hydroelectric and Alaska Intertie**
- **Major Programs: Renewable Energy Fund, Alternative Energy and Energy Efficiency, Rural Energy Upgrades, and others**

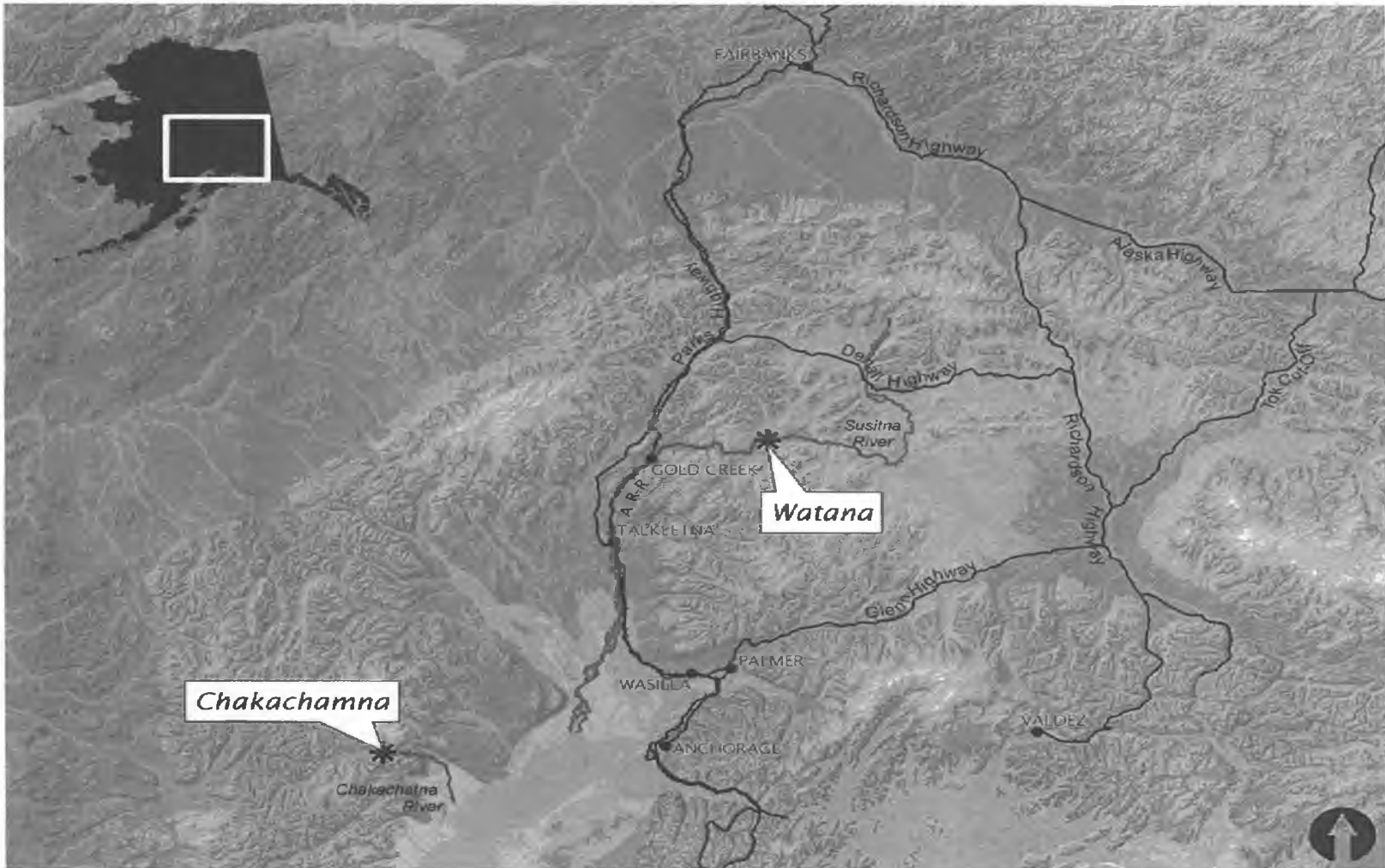
Railbelt Energy:

Energy By Resource Type



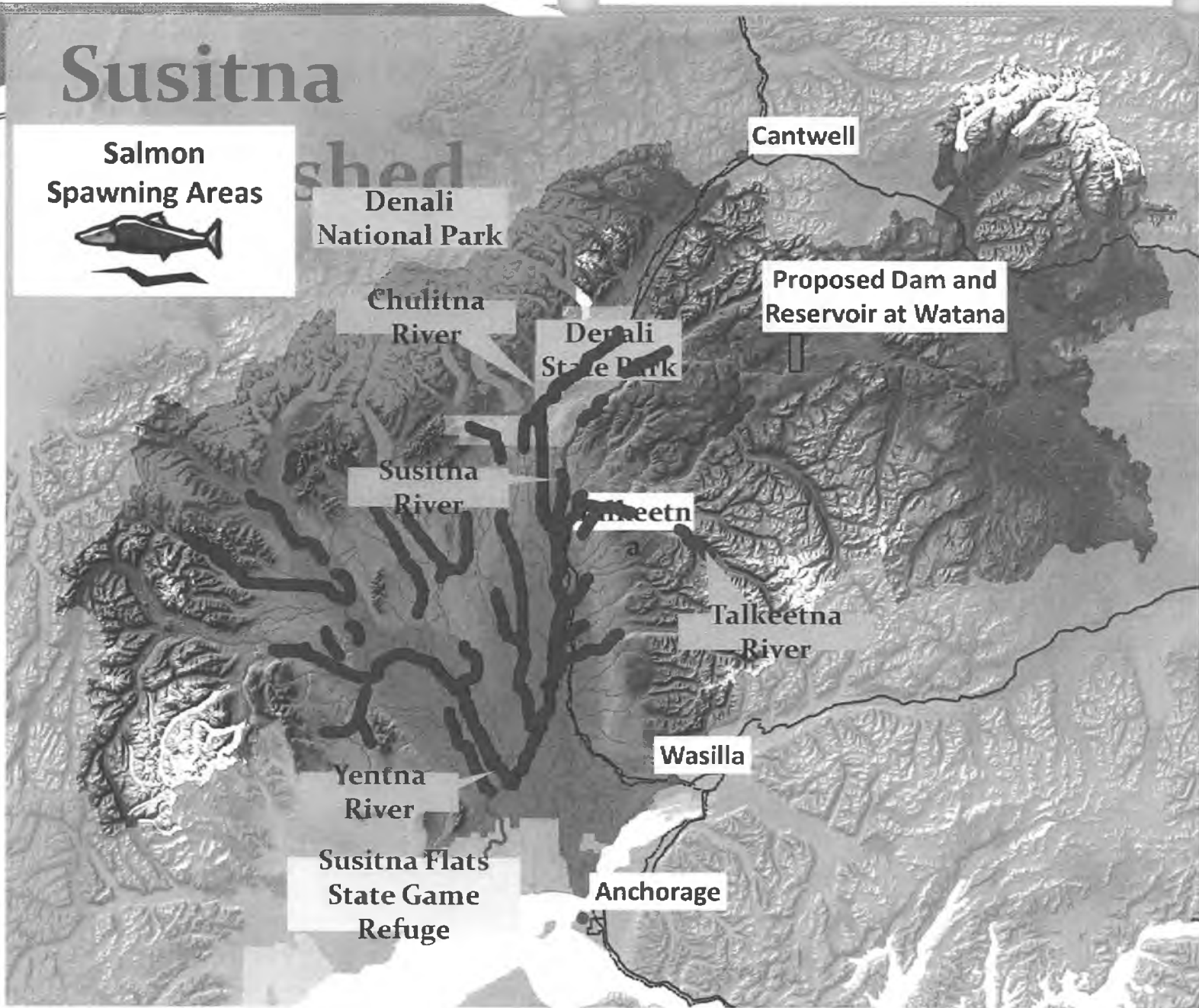
B&V RIRP
2009

Railbelt Hydro Locations



Susitna

Salmon
Spawning Areas



Chakachamna Watershed

Lake Clark
National Park
and Preserve

Spawning Areas
(including Sockeye,
Chinook, Coho,
and Pink Salmon,
and Dolly Varden)

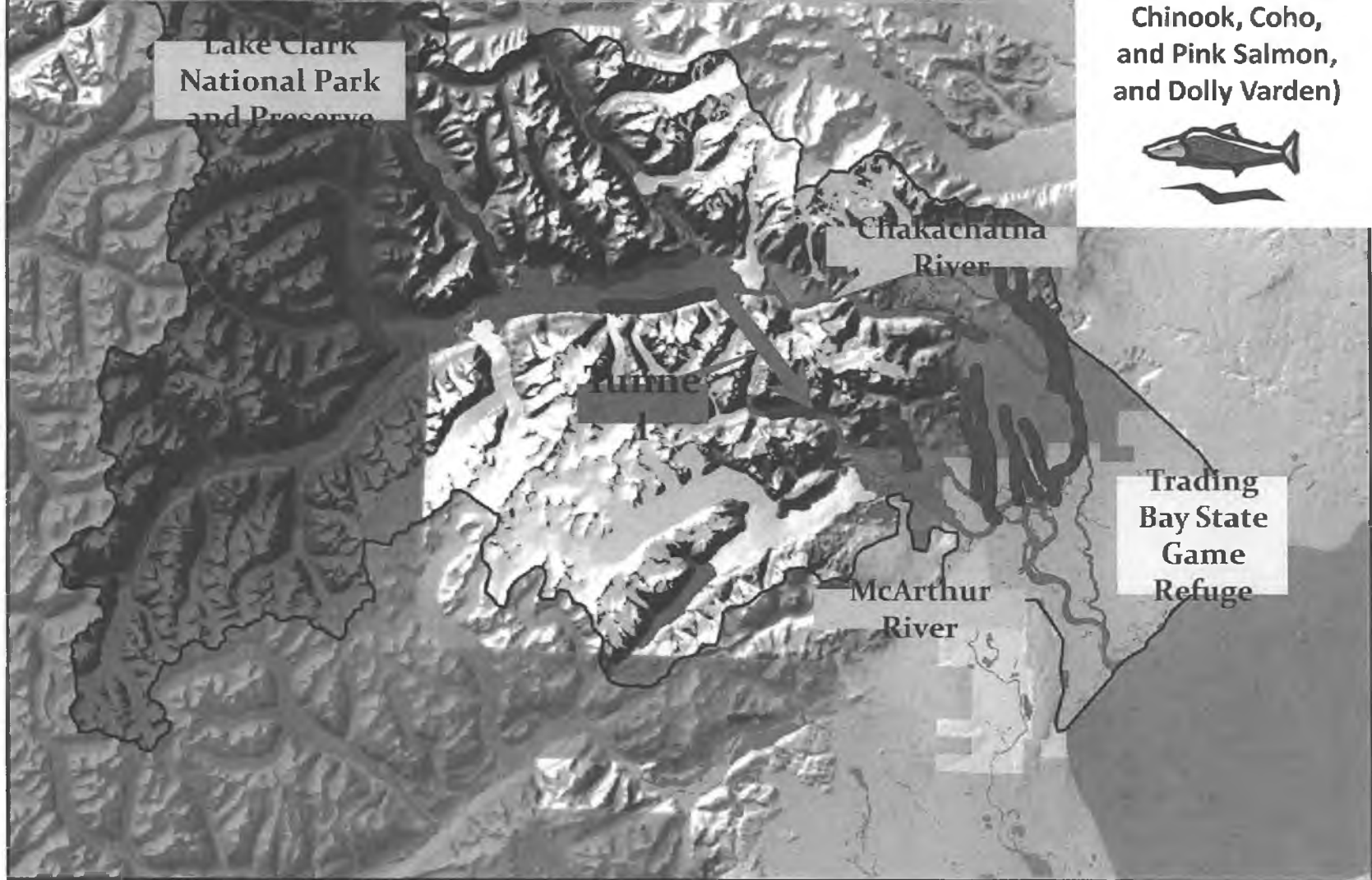


Chakachamna
River

Runne

Trading
Bay State
Game
Refuge

McArthur
River





Environmental:

- **Susitna**
 - **Reservoir 39 miles long & maximum of 2 miles wide**
 - **30 miles above significant salmon**
 - **Some loss of wildlife habitat**
 - **Minimal fisheries impacts**

- **Chakachamna**
 - **Significant salmon populations travel through lake to National Park**
 - **Several species of fish use & spawn in lake (Lake Trout, Dolly Varden, White, Salmon suspected ..)**
 - **Diversion of water & change of habitat in State Game Refuge**
 - **Adult false attraction & outmigration concerns**
 - **May not be able to license under FERC**



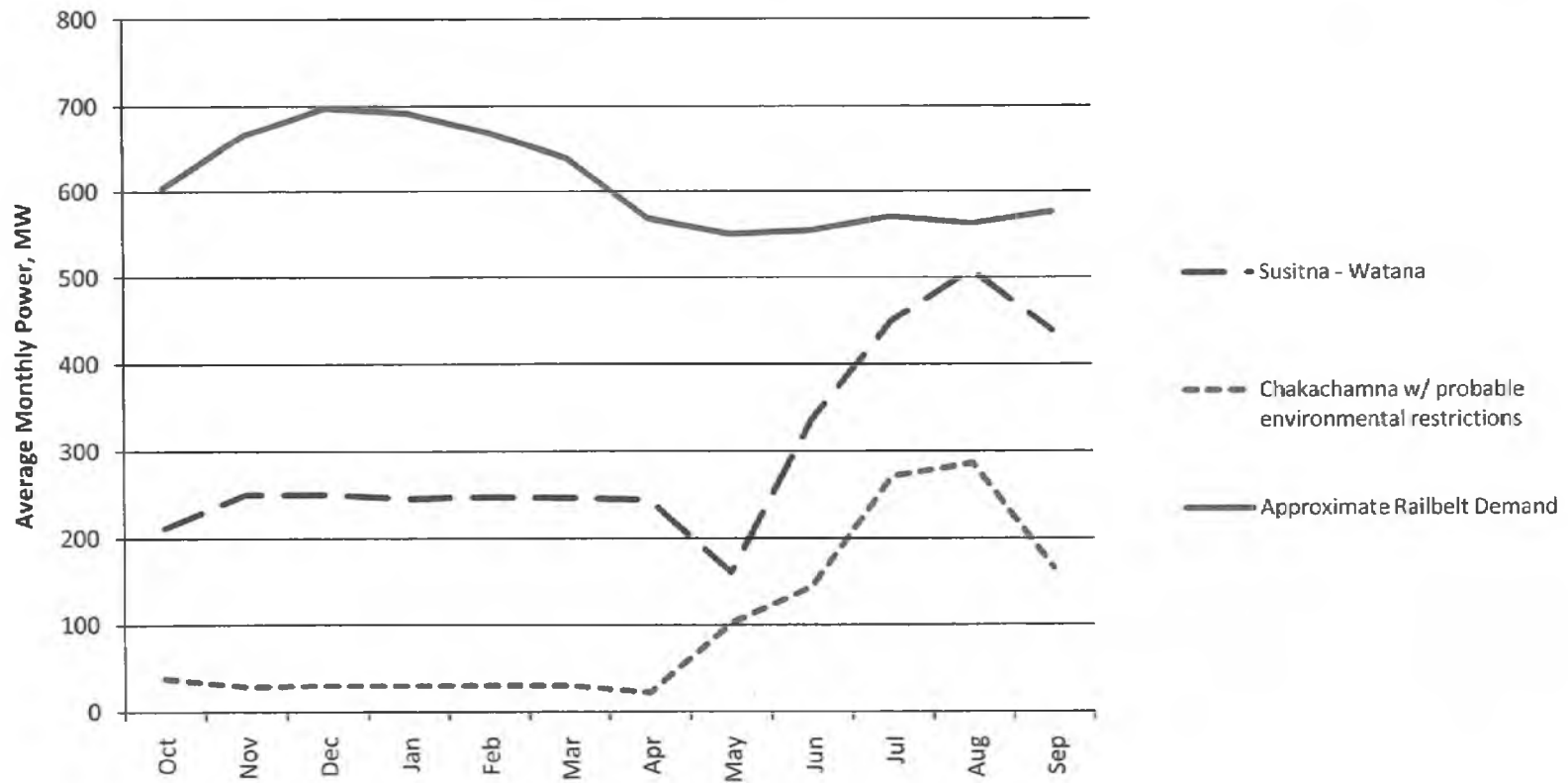
Energy:

- **Susitna**
 - **Installed capacity 600 MW**
 - **Average energy 2600 GWhr/yr**
 - **About 50% of annual railbelt energy**

- **Chakachamna**
 - **Installed capacity ~300 MW**
 - **Average energy 860 – 1100 GWhr/yr**
 - **About 20% of annual railbelt energy**

RAILBELT DEMAND

Alaska Railbelt Demand and Hydropower



Bradley Lake Hydroelectric



Example of embankment dam



Timeline:

Watana

- **Licensing**
 - **3.5 years - Prepare and file Final Application for License**
 - **3 years – FERC Processing and follow-up**
- **Construction**
 - **4.5 years Construction****11 years until startup**

Chakachamna

- **Licensing**
 - **4.5 years - Prepare and file Final Application for License**
 - **4 years – FERC Processing and follow-up**
- **Construction**
 - **5.5 years Construction****14 years until startup**



Watana vs. Chakachamna

- **More energy at lower cost per unit**
- **Fewer geologic risks**
- **No river diversion**
- **Less fisheries impacts**
- **Quicker licensing, Chakachamna may require Congressional action**
- **Expandable for future growth**
- **Provides winter energy**
- **Watana necessary to achieve States 50% renewable goal**